DOCUMENT RESUME

ED 125 739 PS 008 547

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TITLE	Infants' Response to Mother and Stranger at Three and a Half Months.
INSTITUTION	Boston Univ., Mass. Headstart Evaluation and Research Center.
SPONS AGENCY	Office of Economic Opportunity, Washington, D.C.
PUB DATE	[69]
GRANT	OEO-4116
NOTE	10p.
EDRS PRICE	MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS	Auditory Discrimination; Behavior Patterns; Comparative Analysis; Infant Behavior; *Infants; Middle Class Mothers; *Parent Child Relationship; *Research; Response Mode; Social Behavior; *Stimulus Behavior; *Stranger Reactions; Verbal Stimuli; Visual Discrimination; Visual Stimuli

ABSTRACT

This study investigated the response behavior of nine infants, aged 13-15 weeks, to a recurrent pattern of visual and verbal stimuli presented by their own mothers and by female strangers. The infants were presented with the following 2-minute sequence (repeated 3 times): (1) one-half minute of an unknown female leaning over the crib with a nonresponsive face, nodding her head and counting, (2) one-half minute of silence, (3) one-half minute of the mother engaged in the same behavior as the unknown female, and (4) one-half minute of silence. The infant behaviors observed were: (1) smiling, (2) head turning, (3) activity level, and (4) vocalizations (i.e., cooing, laughter or gurgle, fussing, crying, or visceral noise). Results showed that infants were more responsive (i.e., smile more, turned the head more, cooed more, and were more active) to female strangers than to their mothers. Cooing to the female stranger was related to ratings of maternal warmth and maternal vocalization to infants during the first three months of life. (Author/BRT)

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ED125739

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INFANTS' RESPONSE TO MOTHER AND STRANGER AT THREE AND A HALF MONTHS

Freda Rebelsky[1,2]

Abstract

Nine infants, aged 13-15 weeks, when presented with a recurrent pattern of visual and vocal stimuli by their own mothers and by an unknown female E, smiled and cooed more to E than to their mothers. Explanation for this finding was based on the infants' earlier experiences with their mothers; cooing to E was related to ratings of maternal warmth and maternal vocalization to infants in the first three months of life.

PS 008 547

This research was supported by Boston University Head Start Evaluation and Research Center with funds from the Office of Economic Opportunity through a grant (OEO 4116) to Boston University. The opinions expressed are those of the authors and are not necessarily those of the funding agency.

INFANTS' RESPONSE TO MOTHER AND STRANGER

AT THREE AND A HALF MONTHS

Freda Rebelsky[1,2]

This study investigated the rate of social response to mother and stranger of home-reared infants of 13-15 weeks.

Method. Nine middleclass infants in the Boston area, two female and seven male, aged 13-15 weeks, were presented with a recurrent pattern of stimuli: one-half minute of an unknown female E, leaning over the crib with a non-responsive face, nodding her head and saying, "one thousand and one, one thousand and two, one thousand and three, smile," one-half minute of silence, one-half minute of the mother doing what E did, one-half minute of silence. This two-minute stimulus was repeated three times. Infants' responses to these stimuli were observed by two coders (interjudge reliability of all items was over +.90), and verbal responses were also tape recorded for later reliability checks. The infant behaviors observed were occurrence of smiling, head turning, activity (remains same or increases) and sounds made by babies (ccoing, laughter or gurgle, fussing, crying or visceral noise). The sounds were coded as had been done for the tape recordings made of these babies for twenty-four hours every two weeks in their first 3 months of life (Lenneberg, Rebelsky, and Nichols, 1965; Rebelsky, Nichols and Lennebert, 1963). Definitions were:

1. Coo - no strain component; high in vocality; low in glottal stops; smooth onset; happy sound.
2. Fuss - arythmic; strained quality, pauses; unhappy sound.

3. Cry - strained quality, more unhappy sound than fussing.
4. Visceral - sighs, burps, coughs, sucks, hiccoughs, grunts, groans, and all other noises without definite emotional content.

From the data gathered on these babies in the first 3 months of life, mothers' total vocalization to their babies had been ascertained and a maternal warmth rating was made.

Results. There was a significant difference in the behaviors to mother and to stranger: the infants were more responsive, (i.e., smiled more, turned the head more, and were more active) to E than to mother ($p < .05$). In addition, the babies cooed more to E than to the mother ($p < .05$). Two babies laughed, both only to E.

Cooing and smiling were significantly correlated ($r = +.63$, $p < .05$), but cooing and activity were not ($r = +.21$, n.s.). Physical responsiveness, i.e., smiling, turning the head, and activity, was not related to verbal responsiveness, i.e., cooing and laughing ($r = +.13$, n.s.).

During the 6 minute period of recurrent stimulation, there were no changes in activity, smiling, or head turning to mother or E among the three two-minute stimulation periods.

For another study (Lenneberg, Rebelsky and Nichols, 1965), these same nine babies' vocalizations had been tape recorded for 24-hour periods every two weeks in the first 3 months of life. A total maternal vocalization score and a rating of mother warmth had been obtained. Spearman rank order correlations of maternal vocalization in the first 3 months of life and her warmth rating with the amount of baby's cooing to mother and stranger at 3 1/2 months of life were computed. As can be seen in Table I, there was a significant relationship between the two mother scores and the infants'

behavior to a stranger but not to the mother.

Table I

Spearman Rank Order Correlations of

Maternal Behaviors and Infants Social Responsiveness

	Maternal Vocalization	Maternal Warmth
Total Coos to Stranger	+.67*	+.68*
Total Coos to Mother	+.51	+.48

*Significant at .05

Discussion. These infants differentiated the female stranger from the mother, and responded more to the stranger. Such turning away from familiar stimuli to novel stimuli has been noted in other studies (Curcio, 1969[3]; Kagan et al., 1966; Lewis et al., 1967). The present data make it clear that it is difficult to understand a baby's social behavior without an awareness of the prior experiences of the baby. Though age is a rough estimate of development, it is far less precise than reference to the effect on an organism of antecedent variables understood through longitudinal work. Thus it is especially important in infancy, where a few weeks makes a large difference in development, to learn more specifically about prior development.

In addition, many behaviors in infancy, which are considered, "natural," peak or ceiling at certain periods. Careful analyses of the smiling response as by Gewirtz (1965) with four groups of Israeli infants, institutional, day nursery, family, and kibbutz, indicated that smiling to a stranger peaked at 4 months for kibbutz and family infants and at 5 months for institutional infants. Thus, if one were to measure smiling at 4 months, home infants would smile less often than would institutional infants, while if one elicited smiling at 5 months, the opposite result would be obtained.

Interpretation of many developmental norms, for example in developmental quotients, or other standardized test situations, in terms of retardation, may be more fruitfully understood in terms of the ceiling of behavior (Ward, Uzgiris and Hunt, 1969; Rebelsky and Abeles, 1969).

These data fit nicely in with the work of Robson, Pederson and Moss (1969), who found a positive correlation between mother-infant gazing at 1 and 3 months, and infant-stranger gazing at 8 and 9 1/2 months. Maternal behavior in the first 3 months appears, thus, to relate to infants' interest in novelty, which can be represented in social interactions such as cooing to stranger at 3 1/2 months and gazing at stranger at 8 months. Many explanations for the present data, in terms of "basic trust," habituation, strangeness of the maternal behavior, are plausible, but why these results have been found awaits further close analyses of mother-infant interaction.

An additional observation is that both observers felt that cooing in response to the five-second stimulation ("one thousand and one, one thousand and two, one thousand and three, smile") took about 5 seconds to resolve. The infant appeared to respond immediately to the face of E but it took about

5 seconds to "work the coo out." Though coos sound smooth to the listener, the initial air burst in preparation for the coo looks, on spectrograms, very much like effort and strain.

This study has indicated that American babies will smile and coo less to the familiar caretaker than to a stranger at 13-15 weeks, and that this is related to the earlier amount of caretaker-child vocalization and to a rating of maternal warmth.

Footnotes

1. Thanks are due to Rebecca Black and Roberta Blotner for help with data analysis and to Austin Berkely for statistical consultation. These data were collected under grants M-2921 and M-5268, National Institute of Mental Health, to Eric Lenneberg while the author was at Children's Hospital Medical Center, Boston, Massachusetts. Data analysis was partially supported by funds from the Office of Economic Opportunity through a grant (OEO 4116) to Boston University. The opinions expressed are those of the author and are not necessarily those of the funding agency.

2. This is a preliminary draft of a paper which, when finisned, will be submitted to Child Development.

3. Curcio, F. The role of age and experience in infants' selective attention to novelty and incongruity. Submitted to the Journal of Experimental Child Psychology.

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